REMARKS

After the foregoing Amendment, Claims 1 through 16 are currently pending in this application. Claims 1-4, 6, 7, 15, and 16 have been amended to more clearly define the present invention. Applicant submits that no new matter has been introduced into the application by these amendments.

Claim Rejections - 35 USC § 102

The Examiner has rejected claims 1 through 16 under 35 USC 102(e) as being anticipated by International Publication No. WO 02/15326 A2 to Shapira (hereinafter "Shapira".) The Applicant respectfully disagrees.

Shapira discloses a method for adjusting soft hand-off (SHO) zone boundaries in a wireless communication network by adjusting the beam pattern of a smart antenna to simultaneously compensate for inter-sector interference generated by the side lobes of the beam pattern and to correct for the inter-sector interference created by the over extension of the elongated main lobe of the beam pattern. Therefore, Shapira is limited to a specific implementation of vertical beam tilting for adjusting soft hand-off zones. The method of Shapira, in order to reduce the extension of the main lobe, adjusts the SHO zone boundaries in response to the

traffic load detected, and the soft handoff boundaries are stabilized to match the time constants of the soft handoff parameters.

In contrast, the claimed invention is a wireless communication system for transmitting and receiving wireless communications wherein beam-forming antennas are dynamically adjusted in at least a vertical direction. As claimed in claim 1 of the present application, the system may include a plurality of wireless transmit/receive units (WTRUs), at least one beam-forming antenna which may be dynamically adjusted in a vertical dimension, and at least one radio network controller (RNC) for controlling the dynamic adjustment of the beam.

Shapira fails to teach a RNC for controlling the dynamic adjustment of a beam emanating from a beam forming antenna in at least a vertical dimension. The Examiner's citations of Shapira which allegedly discloses a RNC as claimed in the present application in fact teaches classical sectoring of a cell in the azimuth plane. Shapira does not disclose any component for controlling the vertical tilting of a beam emanating from a beam forming antenna.

More specifically, Shapira fails to teach an RNC as claimed in independent claim 1 of the present application for controlling the adjustment of the beam to optimize transmission between the antenna and at least one WTRU. Dynamic vertical beam-forming as claimed in the present application is not limited to the purpose of shifting the soft hand-off (SHO) zone boundaries, as taught by Shapira.

Instead, in the claimed invention, dynamic vertical beam-forming may be used throughout the interior of the cell's coverage area for terrain adaptation, improving signal-to-noise ratios, vertically tilting switched/adaptive beams, dithering, spatial diversity reception and transmission, spatial multiplexing, and spatial layering. Applicant submits that claim 1 and claims 6-10, which depend directly or indirectly from claim 1, are not anticipated by Shapira.

In addition to the above, with respect to claims 8 and 9 in particular, the claims include dithering a beam emanating from a beam forming antenna for breaking up null areas. Dithering, once started, continues to adjust the beam in order to break up null areas. While the beam may change form and the timing of beam changes may be staggered, each change in the dithering pattern is automatic and not due to a change in signal measurements. Shapira fails to teach dithering as claimed in the present application. Shapira's methods for adjusting beams with respect to SHO zone boundaries is of a semi-static nature, responsive to measurement changes of the traffic loads within a cell.

With respect to independent claim 11, Shapira does not teach computing tilt information in real-time based on actual conditions in a wireless communication system, as claimed. In fact, Shapira teaches away from such an arrangement (see page 12, lines 10-15 of Shapiro) as shown below:

> A more optimal solution may be achieved by balancing the SHO boundaries in response to the traffic load sharing balance and stabilizing them to match the time constants of the SHO commands. This balance relates to accumulated interference and can be achieved by measuring and controlling the inter-cell interference, without resorting to the detection of the signals for each user. (Emphasis added.)

Shapira, therefore, does not teach computing tilt information in real-time based on actual conditions. Accordingly, Applicant respectfully submits that claim 11 and claims 12-14, which depend directly or indirectly from claim 11 are not anticipated by Shapira.

With respect to claims 15 and 16, for the same reasons presented above, Applicant submits these claims are not anticipated by Shapira. In view of the above, withdrawal of the rejection of claims 1-16 is respectfully requested.

CONCLUSION

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing amendment and remarks, Applicant respectfully submits that the present application, including claims 1 through 16, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Steven Jeffrey Goldberg

By _____
John C. Donch Jr.
Registration No. 43,593

Volpe and Koenig, P.C.
United Plaza, Suite 1600
30 South 17th Street
Philadelphia, PA 19103
Telephone: (215) 568-6400
Facsimile: (215) 568-6499

JCD/klw